

IN THE SPECIFICATION

Fig. 1 is also illustrative of one of the embodiments of the present invention. Seal **56** can be optionally used with a backup ring **58**. In Fig. 2 the seal **60** is used without such a backup ring. As better seen in Fig. 2, the seal **60** has surfaces **62** and **64**, which face the inner barrel **66** (shown schematically and removed in the seal area for clarity) and are disposed above and below surface **68**. Projections **70** and **72** are respectively at the upper and lower ends of the seal **60**. They respectively extend into depressions **74** and **76** in the housing **77**. This arrangement is reversible so that the protrusions are on the housing **78** while the depressions are on the seal **60**. Grooves **78** and **80** are used to retain grease to reduce the wear of surface **68** by movements of the inner barrel **66**. Seal **60** is energized to seal against inner barrel **66** by applying air pressure at inlet **82**, in a known manner. The protrusions **70** and **72** are compressed toward each other by the depressions **74** and **76** to enhance end sealing. This longitudinal compression and the interlocking nature of the end contact between the seal **60** and the housing **77** replaces the more complex system of the prior seal **10**, which used separate seal rings **40** and **42**. The taper angle of surfaces **62** and **64** allows a greater degree of flexing of the seal **60**, particularly when activated by air pressure at inlet **82**. Tapered surfaces **62** and **64** are preferably made integrally and are preferably not cantilevered. When used in tandem, only one seal is activated into contact with the inner barrel **66** after pressure is applied to its respective inlet **82**. The flexing provided by the taper of about 1-15 degrees on surfaces **62** and **64**, allows surface **68** to make better sealing contact with the inner barrel **66**. The preferred material is a polyurethane of a durometer reading of 70A made from a TDI polyether,

with ultimate tensile strength of about 1300 PSI, elongation above 600%, rebound greater than 58% and a compression set of about 25%.